Preparing for 1-on-1 Task List meetings

Purpose of this discussion: avoid confusion during 1-on-1 task list sessions with the project office.

- We should have a schedule that's internally consistent, at least within local supports, ideally within Pixels (including modules, services, mechanics).
- Note that this schedule for US-ATLAS does **not** need to reflect our current best understanding of the ATLAS ITk plans
  - Philippe wants to update the entire Pixel project tasks/schedule sometime in 2017 when we know more about the layout.
  - This plan has the support of US-ATLAS project management, so they shouldn't be surprised to hear us say that these lists are placeholders. But we are still expected to make a good-faith effort to outline the work according to the baseline we had over the summer: 5 layers of I-beams out to $|\eta| \sim 4$.
- During 1-on-1's you will be expected to know how your task is connected with the rest of the production process, mainly in the form of preceding and succeeding linked tasks. This is the part that we'll focus on today.

Overall Scheduling Constraints

- Preproduction doesn't start until FY19, production doesn't start until FY20
  - Means we don't have money for production until FY20
- Most of the deliverables in local supports feed into stave loading at SLAC.
  - Notable exception is the ANL cooling lines (either needed at LBNL for I-beam production, or only at CERN much later)
  - Stave loading end-date is determined by ATLAS ITk Pixel project schedule (system testing and surface commissioning)
  - Stave loading works back from this end-date to plan schedule in out years
- Most other schedules work backwards from when their parts are needed at SLAC for loading
  - Exception: end-of-Stave currently has no "successor" tasks, so no constraints.
- I-beams schedule is a bit faster than "just in time", more like "as fast as possible, with reasonable constraints".

Remaining issues from the summer

Over the summer we were mostly able to line everything up so that parts arrive at SLAC by whenever they're needed.

- TWP and Flex are producing faster than needed for loading
- Modules schedule also lines up with loading schedule
- I-beams available early
- **When possible, links between L4 task lists in P6 have already been implemented.**

Leftover discussions

- Evaporators from ANL aren't scheduled to arrive at LBNL until after the corresponding I-beams are produced.
  - Seems to be enough flexibility in the schedule (certainly on I-beam production side) to resolve this.
  - Currently left as un-linked tasks in P6

Problems with most recent lists

Some problems have emerged in the most recent versions of the lists provided by Xiaofeng:

- Parallel tasks are often incorrectly serialized, leading to large shifts in the schedule.

Irradiate prototype cables at irradiation facility	2/1/2017	4/30/2017	63
Mount and test preferred designs on mechanical stave prototype	2/1/2017	3/30/2017	42

TWP1040	Irradiate prototype cables at irradiation facility	1-Feb-17	28-Apr-17	63	TWP1030
TWP1050	Mount and test preferred designs on mechanical stave prototype	1-May-17	27-Jun-17	42	TWP1040

- Should be easy to solve by breaking links

Problems with most recent lists

- Production tasks in the thermal-QC and stave-loading lists often have multiple predecessors that span many months (or years). This can lead to large shifts in the schedule, as a task cannot "start" until all its predecessors are complete.

Milestone: Readiness for full stave Thermal QC measurement	3/4/2019
Milestone: First pre-production Staves received from LBNL	6/3/2019

Milestone: Readiness for full stave Thermal QC measurement	4-Mar-19	4-Mar-19	IB130170
Milestone: First pre-production Staves received from LBNL	24-Jan-20	24-Jan-20	IB120380, IB120400, IB120420, IB1

  - We need to clarify with the project office how to handle these in P6. (EVMS training implied that we should be able to accommodate more complicated dependency graphs than just end-to-start.)
  - For now, easy to solve by breaking links, but we obviously want to see these connections at some point
  - Impact on Stave Loading schedule isn't as drastic (it absorbs all shipments into a "receiving" task that isn't a predecessor for anything else)

Suggestions

- **We all need to look at each task list and cross check all dates to see that things agree with what we submitted.**
- If things are wrong, two problems to check are:
  1. parallel tasks that are incorrectly linked
  2. predecessor tasks that are inappropriate
- Aside from some prototypes being passed around prior to production that create special links here and there, most groups only need to look at one list aside from their own to understand the most important links:
  - ANL: check LBNL I-beam list
  - LBNL: check SLAC I-beam and SLAC loading lists
  - SLAC I-beam (thermal QC): LBNL and SLAC loading
  - SLAC EoS: none
  - SLAC loading: all
  - UCSC: SLAC loading
  - UNM: SLAC loading
- Xiaofeng is getting back to us about how to implement corrections, but for now assume we can correct the lists during the 1-on-1 sessions in real time